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KATTEN MUCHIN ROSENMAN LLP
575 MADISON AVENUE
NEW YORK, NY 10022-2585

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/769,701	OKAMURA ET AL.	
	Examiner	Art Unit	
	HABTE MERED	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2004* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 9/04/20008 has been entered and fully considered.

2. Claims 1 and 3-53 are pending. Claims 1 and 52 are the base independent claims. Independent Claims 1 and 52 and dependent claims 3, 5-40, and 53 are amended. Claim 2 is cancelled. Independent claim 1 is amended by incorporating features from cancelled dependent claim 2.

Response to Arguments

3. In the Remarks, with respect to the amended independent claim 1, Applicant argues that Tanay et al does not teach the claimed quality guaranteed and quality non-guaranteed route features. In particular, Applicant challenges Examiner's interpretation of zero priority to teach a quality non-guaranteed route feature. Applicant further argues in the Remarks on page 22 that zero priority has only significance in view of other priorities as assigned by the modeler.

Examiner respectfully disagrees. Tanya et al indeed teaches the claimed quality guaranteed and quality non-guaranteed route features. Examiner will refute Applicant's arguments from two perspectives.

First, it should be noted that Applicant agrees that Tanya et al teaches categorizing the collected statistics into traffic classes and assigning priority to these classes. Applicant appears to suggest the assignment of priority is unrelated to quality. However, Tanya et al shows in paragraphs 26 and 41 that priority assignment is based on quality and it shows that the higher the priority the higher the quality delivered to the network. Hence a priority of zero definitely maps to low quality and definitely zero priority does not give any guarantee and hence zero priority routes can broadly be mapped to quality non-guaranteed routes.

Second, the Examiner wants to remind the Applicant that Tanya et al in paragraphs 23, 24, and 39 clearly shows that the network 110 can be IP or MPLS. Tanya et al further shows the modeler uses the IP class priority and the MPLS class of service to determine quality index for the routes. An IP network uses the information in an IP header to determine quality. IPv4 uses precedence (priority) and type of service embedded in the IP header to identify a particular traffic class. IPv6 uses class of service embedded in the IP header to identify a particular traffic class. In IP world the best-effort traffic class is the quality non-guaranteed traffic class. The best-effort traffic class in IPv4 is represented by a priority/precedence of zero and type of service value of zero. The best-effort traffic class in IPv6 is represented by a class of service/priority of zero. Clearly Tanya et al shows all of the parameters needed to identify a best-effort class

being passed to the modeler at the bottom of paragraph 25. These facts are also documented in RFC 2474, 791, and 1394.

Finally, Applicant seems to suggest none of the cited references teaches the claimed quality guaranteed and quality non-guaranteed route features. Examiner again respectfully disagrees. In addition to Tanya et al, clearly Ma teaches the limitation in question and further lending strong support to the above analysis presented by the Examiner. In the abstract and in Figure 3 it shows that IP network can have a best-effort (i.e. quality non-guaranteed) route and quality guaranteed route. Ma'317 further shows that a best-effort (i.e. quality non-guaranteed) route has the lowest priority (i.e. zero priority).

4. In conclusion, the Examiner wants to emphasize that the cited prior arts, i.e. Soumiya'357, Tanay'246, Ma'317, and Szviatovszki'821, adequately teach the main themes of all of the pending claims. The limitation requiring a quality guaranteed search module and a quality non-guaranteed search module cannot be a distinguishing factor as all of the prior arts have a network database that stores routes that have priority and in particular Tanay'246, Ma'317, and Szviatovszki'821 clearly teach that <u>a router searcher module as long as it is able to accept a request for both quality guaranteed and non-guaranteed services and has separate algorithms to determine call admission and load balancing for guaranteed and non-guaranteed services and Szviatovszki'821 in particular teaches these separate algorithms then it has to have separate software/hardware modules to process and search the network database. This is true</u>

for any router like Ma'317 and Soumiya'357 that has a network database that stores path and route info based on priority/class/QoS basis. Also, Szviatovszki'821 clearly teaches or suggests the various route selection strategies and load balancing schemes claimed and in particular these strategies and policies are shown in Szviatovszki'821's Figure 8. Soumiya'357 primarily provides support for the architecture of the router.

Hence it is the belief of the Examiner that the broad limitations of the independent claims 1 and 53 need to be further qualified with features of the invention that quantifies what exactly are the thresholds and ratios the numerous prior arts cited by the Examiner as well as provided by the Applicant.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 46, 48, and 50** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claim 46**, claim 46 recites the limitation "...the path using ratio as a ratio of the used bandwidth among the entire bandwidth of the path ..." in lines 3-4. It is not clear at all to the Examiner if an actual ratio is being defined where the numerator is the "used bandwidth" and the denominator is the "entire bandwidth of the path" or the numerator is simply "used bandwidth among the entire bandwidth of the path". Fort the

purpose of examining the claim the ratio is defined as “a ratio of the used bandwidth to the entire bandwidth of the path”.

Regarding **claim 48**, claim 48 recites the limitation “...a ratio at which a bandwidth ensured for the service that guarantees...” in lines3-5. Mathematically speaking a ratio has a numerator and a denominator. In this case Examiner is unable to identify a clear definition of a ratio in terms of a numerator and a denominator. For the purpose of examining the claim a ratio can be addressed by any ratio of two quantities.

Regarding **claim 50**, Claim 50 in Lines 3-4 recites the limitation "... a ratio at which an actual used bandwidth for the service". Mathematically speaking a ratio has a numerator and a denominator. In this case Examiner is unable to identify a clear definition of a ratio in terms of a numerator and a denominator. For the purpose of examining the claim a ratio can be addressed by any ratio of two quantities.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1, 3-6, and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Soumiya (US 7, 136, 357 B1) in view of Tanay et al (US Pub. No. 2002/0174246 A1).

Regarding **claim 1**, Soumiya'357 discloses a transmission bandwidth control device **(See Figure 8, MPLS router)** for controlling a transmission route for a flow in a network, comprising: a statistical information collecting unit for collecting pieces of statistical information from respective routers connected to the network **(Figure 8, element 112, Routing Protocol Section, has two functionality of which the first is to collect statistical information on traffic characteristics as illustrated in Column 10, Lines 10-16.)**; a network information database for storing the statistical information collected **(Figure 8, element 113A is a Link State Database used for storing the statistical info as further illustrated in Column 10, Lines 20-25)**;

a user request processing unit for accepting and processing a flow forwarding request from a user terminal **(See Figure 8, element 111 is the input processing center as further illustrated in Figure 6 an on-demand request as further illustrated in column 9, lines 24-30. The actual user terminal is shown in Figure 2a as elements 9s and 9a)**;

a route control unit **(Figure 8, element 112, Routing Protocol Section, has two functionality of which the second is to search for a route matching input request as illustrated in Column 10, Lines 10-25)** for searching for a route corresponding to the request from the user terminal by referring to the network information database; a load sharing control unit for executing such a load sharing process as to generate router

setting information for sharing a transmission load of the network by referring to the network information database **(The Traffic Engineering Section 116 of Figure 8 is further detailed in Figure 9 as containing a load adjustment and observation sections. See also Column 10, Lines 30-35)**;

and a router control unit **(See Figure 8, elements 112 and 115 collectively function as the router control unit by setting the LSP and communicating it to other routers as further illustrated in Column 10, Lines 38-44)** for setting a router based on the route information determined by the route control unit and on the router setting information generated by the load sharing control unit **(See Figure 8, elements 112 and 115 collectively function as the router control unit by setting the LSP and communicating it to other routers as further illustrated in Column 10, Lines 38-44)**.

Soumiya'357 fails to disclose a transmission bandwidth control device, wherein <u>the route control unit includes quality guaranteed route searching module searching for quality guaranteed route information corresponding to the flow forwarding request for the forwarding quality guaranteed flow by referring to link statistical information concerning links between the respective routers from the network information database and quality non-guaranteed route searching module searching for quality non-guaranteed route information corresponding to the forwarding request for the forwarding quality non-guaranteed flow, by referring to link statistical information concerning links between the respective routers from the network information database, the load sharing control unit executes the load sharing process by referring to the quality guaranteed</u>

route information and the quality non-guaranteed route information, and the router control unit sets the quality guaranteed route and the quality non-guaranteed route in accordance with the searched quality guaranteed route information and quality non-guaranteed route information.

However, the above mentioned claimed limitations are well known in the art as evidenced by Tanay'246. In particular, Tanay'246 discloses a transmission bandwidth control device **(See Figure 8. Figure 8 is an MPLS router responsible for brokering bandwidth for Soumiya'357's system.)**, wherein the route control unit includes quality guaranteed route searching module searching for quality guaranteed route information corresponding to the forwarding request for the forwarding quality guaranteed flow by referring to link statistical information concerning links between the respective routers from the network information database **(Tanay'246 discusses in paragraphs 24 and 25 and in Figure 1 that the statistics collector and modeler 118 creates the quality guaranteed route info by classifying it on class and priority in database 124 using stored policy 134.)** and quality non-guaranteed route searching module searching for quality non-guaranteed route information corresponding to the forwarding request for the forwarding quality non-guaranteed flow, by referring to link statistical information concerning links between the respective routers from the network information database **(Tanay'246 discusses in paragraphs 24 and 25 and in Figure 1 that the statistics collector and modeler 118 creates the quality guaranteed route info by classifying it on class and priority in database 124 using stored policy 134. If priority is zero**

it is a non-quality guarantied route and the user requests can be relayed by the network 110 or user interface 112.),

the load sharing control unit executes the load sharing process by referring to the quality guaranteed route information and the quality non-guaranteed route information **(See Figures 2 and 4. In paragraphs 45, 47, and 59 Tanay'246 discusses the scheme for load sharing and is based on collected statistics stored in database 124),**

and the router control unit sets the quality guaranteed route and the quality non-guaranteed route in accordance with the searched quality guaranteed route information and quality non-guaranteed route information **(In paragraphs 19 and 27 it shows that the respective route information stored in the routing table 128 of Figure 1 have the appropriate routers associated with these route information in the routing table 128 of Figure 1 such that the respective routes are optimized. The routing table is distributed by element 122 of Figure 1 to all routers).**

In view of the above, having the device of Soumiya'357 and then given the well established teaching of Tanay'246 , it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Soumiya'357 as taught by Tanay'246 , since Tanay'246 in paragraph 7 teaches the benefit of having a central bandwidth broker in a routing system as providing computational efficiency and optimizing the selected routes based on statistics collected from routers in the system as further illustrated in Tanay'246's paragraph 8. Soumiya'357's device can be modified by the teachings of Tanay'246 because Soumiya'357's system like

Tanay'246's relies on distinguishing quality of service of each route or path as indicated in Soumiya'357 Column 9, Lines 20-25 in that it clearly states that each session has priority and pre-emption attributes.

Regarding **claim 3**, Soumiya'357 discloses s transmission bandwidth control device further comprising a load judging unit **(The Traffic Engineering Section 116c of Figure 9 is the load judging unit for Soumiya'357's system as further illustrated in Column 11, Lines 33-35)** for judging whether or not a load state of a path is equal to or smaller than the threshold value by referring to the link statistical information, when the load state of the path is equal to or smaller than the threshold value **(Using Equations 14 and 15 Soumiya'357 achieves the load calculation on a given path and actually gives an example using threshold to delete or choose a route in Column 24, in Lines 45-55)**,

the quality guaranteed route searching module searches for the quality guaranteed route information, the load sharing control unit **(The Traffic Engineering Section 116 of Figure 8 is further detailed in Figure 9 as containing a load adjustment and observation sections and are used for load sharing control unit. See also Column 10, Lines 30-35)** executes the load sharing process by referring to the quality guaranteed route information, and the router control unit sets the quality guaranteed route in accordance with the quality guaranteed route information **(In paragraphs 19 and 27 it shows that the respective route information stored in the routing table 128 of Figure 1 have the appropriate routers associated with these route information in the routing table 128 of Figure 1 such that the respective**

routes are optimized. The routing table is distributed by element 122 of Figure 1 to all routers).

Regarding **claim 4**, Soumiya'357 discloses a transmission bandwidth control device according, wherein the load sharing control unit executes the load sharing process at an interval of a predetermined period **(In Column 17, Lines 42-44 Soumiya'357 shows an interval of a predetermined period of t4).**

Regarding **claim 5**, the combination of Soumiya'357 and Tanay'246 discloses a transmission bandwidth control device **(See Soumiya'357's Figures 8 and 9)**, wherein the quality guaranteed route searching module **(Tanay'246's Figure 1 element 118 the Statistics Collector and Modeler conducts search of the different components of database 124 based on collected statistics and input request as well as existing network topology 118)** searches for a single piece of route information that meets a requested quality as the quality guaranteed route, the quality non-guaranteed route searching module searches for plural pieces of route information as the quality non-guaranteed routes, and the router control unit sets a plurality of routes related to the quality non-guaranteed routes in accordance with the plural pieces of route information **(Examiner notes that in the rejection of claim 2 it was already established that in Tanay'246's routing tables 130 the selected path consist of quality and non-quality guaranteed routes and each demand can contain the pieces of route information claimed).**

Regarding **claim 6**, the combination of Soumiya'357 and Tanay'246 discloses a transmission bandwidth control device **(See Soumiya'357's Figures 8 and 9)**, wherein

the quality non-guaranteed route searching module **(Tanay'246's Figure 1 element 118 the Statistics Collector and Modeler conducts search of the different components of database 124 based on collected statistics and input request as well as existing network topology 118)** searches for a single piece of route information as the quality non-guaranteed route, the quality guaranteed route searching module searches for plural pieces of route information as the quality guaranteed routes, and the router control unit sets a plurality of routes related to the quality guaranteed routes in accordance with the plural pieces of route information **(Examiner notes that in the rejection of claim 2 it was already established that in Tanay'246's routing tables 130 the selected path consist of quality and non-quality guaranteed routes and each demand can contain the pieces of route information claimed).**

Regarding **claim 52,** Soumiya'357 discloses a transmission control method of controlling a transmission route for a flow in a network, comprising: collecting pieces of statistical information from respective routers connected to the network **(See Figure 9, element 116B receiving statistical info on traffic characterization from other routers)**; accepting a flow forwarding request from a user terminal **(See Figure 8, element 111 is the input processing center as further illustrated in Figure 6 an on-demand request as further illustrated in Column 9, Lines 24-30. The actual user terminal is shown in Figure 2a as elements 9s and 9a)** and

executing such a load sharing process as to generate router setting information for sharing a transmission load of the network by referring to at least one of the network statistical information **(The Traffic Engineering Section 116 of Figure 8 is further**

detailed in Figure 9 as containing a load adjustment and observation sections. See also Column 10, Lines 30-35);

and setting a router based on the router setting information **(See Figure 8, elements 112 and 115 collectively function as the router control unit by setting the LSP and communicating it to other routers as further illustrated in Column 10, Lines 38-44).**

However, Soumiya'357 fails to disclose quality-guaranteed-route searching for quality guaranteed route information corresponding to the request for the forwarding the flow that guarantees a forwarding quality by referring to the network statistical information and the request from the user terminal; quality-non-guaranteed-route searching for a quality non-guaranteed route corresponding to the request for forwarding the flow that does not guarantee the forwarding quality by referring to the network statistical information and the request from the user terminal; executing such a load sharing process as to generate router setting information for sharing a transmission load of the network by referring to at least one of the network statistical information the quality guaranteed route information and quality non-guaranteed route information; and setting a router based on the route information, the router setting information, the quality guaranteed route information and the quality non-guaranteed route information.

However, the above mentioned claimed limitations are well known in the art as evidenced by Tanay'246. In particular, Tanay'246 discloses quality-guaranteed-route searching for quality guaranteed route information corresponding to the request for forwarding the flow that guarantees a forwarding quality by referring to the network

statistical information and the request from the user terminal **(Tanay'246 discusses in paragraphs 24 and 25 and in Figure 1 that the statistics collector and modeler 118 creates the quality guaranteed route info by classifying it on class and priority in database 124 using stored policy 134.)**;

quality-non-guaranteed-route searching for a quality non-guaranteed route corresponding to the request for forwarding the flow that does not guarantee the forwarding quality by referring to the network statistical information and the request from the user terminal **(Tanay'246 discusses in paragraphs 24 and 25 and in Figure 1 that the statistics collector and modeler 118 creates the quality guaranteed route info by classifying it on class and priority in database 124 using stored policy 134. If priority is zero it is a non-quality guarantied route and the user requests can be relayed by the network 110 or user interface 112.)**; executing such a load sharing process as to generate router setting information for sharing a transmission load of the network by referring to at least one of the network statistical information the quality guaranteed route information and quality non-guaranteed route information **(See Figures 2 and 4. In paragraphs 45, 47, and 59 Tanay'246 discusses the scheme for load sharing and is based on collected statistics stored in database 124)**;

and setting a router based on the route information, the router setting information, the quality guaranteed route information and the quality non-guaranteed route information **(In paragraphs 19 and 27 it shows that the respective route information stored in the routing table 128 of Figure 1 have the appropriate routers associated with these route information in the routing table 128 of Figure**

1 such that the respective routes are optimized. The routing table is distributed by element 122 of Figure 1 to all routers).

In view of the above, having the method of Soumiya'357 and then given the well established teaching of Tanay'246, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Soumiya'357 as taught by Tanay'246 , since Tanay'246 in paragraph 7 teaches the benefit of having a central bandwidth broker in a routing system as providing computational efficiency and optimizing the selected routes based on statistics collected from routers in the system as further illustrated in Tanay'246's paragraph 8. Soumiya'357's method can be modified by the teachings of Tanay'246 because Soumiya'357's system like Tanay'246's relies on distinguishing quality of service of each route or path as indicated in Soumiya'357 Column 9, Lines 20-25 in that it clearly states that each session has priority and pre-emption attributes.

1. **Claims 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Soumiya'357 in view of Tanay'246 as applied to claim 5 above, and further in view of Ash et al (US 6, 590, 867 B1).

Regarding **claim 7**, the combination of Soumiya'357 and Tanay'246 fails to explicitly disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module selects such a route as to minimize a cross-over hop count in the network, and the quality non-guaranteed route searching module selects such a route as to minimize the network cross-over hop count.

However, the above mentioned claimed limitations are well known in the art as evidenced by Ash'867. In particular, Ash'867 discloses a transmission bandwidth control device **(In Figure 1, element 20 is a bandwidth broker)**, wherein the quality guaranteed route searching module selects such a route as to minimize a cross-over hop count in the network, and the quality non-guaranteed route searching module selects such a route as to minimize the network cross-over hop count **(In Column 5, Lines 30-40 Ash'867 states that the bandwidth broker 20 of Figure 1 always selects the shortest path that contains the minimum number of hops between the destination and the source)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ash'867, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Ash'867, since Ash'867 in Column 2, Lines 1-3 teaches one way of achieving minimum network routing cost is to select the minimum number of hops.

Regarding **claim 8**, the combination of Soumiya'357 and Tanay'246 fails to explicitly disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module selects such a route as to minimize a cross-over hop count in the network, and the quality non-guaranteed route searching module selects such a route as to minimize the network cross-over hop count.

However, the above mentioned claimed limitations are well known in the art as evidenced by Ash'867. In particular, Ash'867 discloses a transmission bandwidth control device **(In Figure 1, element 20 is a bandwidth broker)**, wherein the quality guaranteed route searching module selects such a route as to minimize a cross-over hop count in the network, and the quality non-guaranteed route searching module selects such a route as to minimize the network cross-over hop count **(In Column 5, Lines 30-40 Ash'867 states that the bandwidth broker 20 of Figure 1 always selects the shortest path that contains the minimum number of hops between the destination and the source)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ash'867, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Ash’867, since Ash'867 in Column 2, Lines 1-3 teaches one way of achieving minimum network routing cost is to select the minimum number of hops.

7. **Claims 9-18, 21-32, and 40-51** are rejected under 35 U.S.C. 103(a) as being unpatentable over Soumiya'357 in view of Tanay'246 as applied to claim 1 above, and further in view of Szviatovszki (US 6, 956, 821 B1).

Regarding **claim 9**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module selects such a route as to minimize a cross-over hop count in

the network, and the quality non-guaranteed route searching module selects such a route as to maximize a residual bandwidth in the network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)** wherein the quality guaranteed route searching module selects such a route **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** and as to minimize a cross-over hop count in the network **(See Figure 3, block 40 requiring min hop as a selection criteria)**, and the quality non-guaranteed route searching module selects **(Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** such a route as to maximize a residual bandwidth in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item).**

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and

Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 10**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module selects such a route as to minimize a cross-over hop count in the network, and the quality non-guaranteed route searching module selects such a route as to maximize a residual bandwidth in the network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)** wherein the quality guaranteed route searching module selects such a route **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** and as to minimize a cross-over hop count in the network **(See Figure 3, block 40 requiring min hop as a selection criteria)**, and the quality non-guaranteed route searching module selects **(Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** such a route as to maximize a residual bandwidth in the

network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item).**

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 11**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module selects such a route as to maximize a residual bandwidth in the network, and the quality non-guaranteed route searching module selects such a route as to minimize the cross-over hop count in the network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)** wherein the quality

guaranteed route searching module **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** selects such a route as to maximize a residual bandwidth in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)**, and the quality non-guaranteed route searching module **(Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** selects such a route as to minimize the cross-over hop count in the network **(See Figure 3, block 40 requiring min hop as a selection criteria)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 12**, it is noted that all of the limitations of claim 12 correspond to all of the limitations of claim 11 and hence the Examiner's comments with respect to claim 11 as set forth above applies.

Regarding **claim 13**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device wherein the quality guaranteed route searching module selects such a route as to maximize a residual bandwidth between a network ingress node and a network egress node in the network, and the quality non-guaranteed route searching module selects such a route as to maximize a residual bandwidth between the network ingress node and the network egress node in the network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device, wherein the quality guaranteed route searching module **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** selects such a route as to maximize a residual bandwidth between a network ingress node and a network egress node in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)**, and the quality non-guaranteed route searching module **(Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search**

module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6) selects such a route as to maximize a residual bandwidth between the network ingress node and the network egress node in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 14**, it is noted that all of the limitations of claim 14 correspond to all of the limitations of claim 13 and hence the Examiner’s comments with respect to claim 13 as set forth above applies.

Regarding **claim 15**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module selects such a route as to minimize a residual bandwidth

between the network ingress node and the network egress node in the network, and the quality non-guaranteed route searching module selects such a route as to minimize the cross-over hop count between the network ingress node and the network egress node in the network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)** wherein the quality guaranteed route searching module **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** selects such a route as to minimize a residual bandwidth between the network ingress node and the network egress node in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)**, and the quality non-guaranteed route searching module **(Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** selects such a route as to minimize the cross-over hop count between the network ingress node and the network egress node in the network **(See Figure 3, block 40 requiring min hop as a selection criteria)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 16**, it is noted that all of the limitations of claim 16 correspond to all of the limitations of claim 15 and hence the Examiner's comments with respect to claim 15 as set forth above applies.

Regarding **claim 17**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device wherein the quality guaranteed route searching module selects such a route as to minimize a residual bandwidth between a network ingress node and a network egress node in the network, and the quality non-guaranteed route searching module selects such a route as to maximize a residual bandwidth between the network ingress node and the network egress node in the network.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device, wherein the quality guaranteed route searching module

(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6) selects such a route as to minimize a residual bandwidth between a network ingress node and a network egress node in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)**, and the quality non-guaranteed route searching module **(Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** selects such a route as to maximize a residual bandwidth between the network ingress node and the network egress node in the network **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a

specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 18**, it is noted that all of the limitations of claim 18 correspond to all of the limitations of claim 17 and hence the Examiner's comments with respect to claim 17 as set forth above applies.

Regarding **claim 21**, the combination of Soumiya'357, Tanay'246, and Szviatovszki'821 discloses a transmission bandwidth control device**(Szviatovszki'821 Figure 7, element 70 shows a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)**, wherein the quality guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having**

high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth) or such a route as to minimize a residual bandwidth therein between the network ingress node and the network egress node, and the quality non-guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to maximize the residual bandwidth between the network ingress node and the network egress node, selects such a route as to minimize a cross-over hop count therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)**.

Regarding **claim 22**, the combination of Soumiya'357, Tanay'246, and Szviatovszki'821 discloses a transmission bandwidth control device **(Szviatovszki'821 Figure 7, element 70 shows a Label Switched Router that serves as a bandwidth**

broker with a traffic engineering database), wherein the quality guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)** or such a route as to minimize a residual bandwidth therein between the network ingress node and the network egress node, and the quality non-guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to maximize the residual bandwidth between the network ingress node and the network

egress node, selects such a route as to minimize a cross-over hop count therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)**.

Regarding **claim 23**, the combination of Soumiya'357, Tanay'246, and Szviatovszki'821 discloses a transmission bandwidth control device **(Szviatovszki'821 Figure 7, element 70 shows a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)**, wherein the quality guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of routes as to maximize the residual bandwidth between the network ingress node and the network egress node, selects such a route as to minimize a cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** therein between the network ingress node and the network egress node or such a route as to minimize a residual bandwidth **(See Szviatovszki'821 Figure 3, block 42 by selecting the path**

that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth) therein between the network ingress node and the network egress node, and the quality non-guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth**

with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth).

Regarding **claim 24**, it is noted that all of the limitations of claim 24 correspond to all of the limitations of claim 23 and hence the Examiner's comments with respect to claim 23 as set forth above applies.

Regarding **claim 25,** the combination of Soumiya'357, Tanay'246, and Szviatovszki'821 discloses a transmission bandwidth control device **(Szviatovszki'821 Figure 7, element 70 shows a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)**, wherein the quality guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to maximize the residual bandwidth between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available**

bandwidth), selects such a route as to minimize a cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node or such a route as to minimize a residual bandwidth therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)**, and the quality non-guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to maximize the residual bandwidth **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links**

having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth) therein between the network ingress node and the network egress node, selects such a route as to minimize a cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node.

Regarding **claim 26**, it is noted that all of the limitations of claim 26 correspond to all of the limitations of claim 25 and hence the Examiner's comments with respect to claim 25 as set forth above applies.

Regarding **claim 27**, the combination of Soumiya'357, Tanay'246, and Szviatovszki'821 discloses a transmission bandwidth control device **(Szviatovszki'821 Figure 7, element 70 shows a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)**, wherein the quality guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the residual bandwidth between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15**

and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth) and the network egress node or such a route as to minimize a cross-over hop count between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)**, and the quality non-guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the cross-over hop count between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)**, selects such a route as to maximize a residual bandwidth between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority)**

and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth).

Regarding **claim 28**, it is noted that all of the limitations of claim 28 correspond to all of the limitations of claim 27 and hence the Examiner's comments with respect to claim 27 as set forth above applies.

Regarding **claim 29**, the combination of Soumiya'357, Tanay'246, and Szviatovszki'821 discloses a transmission bandwidth control device **(Szviatovszki'821 Figure 7, element 70 shows a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)**, wherein the quality guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the residual bandwidth between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)**, selects such a route as to minimize a cross-over hop count **(See**

Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria) therein between the network ingress node and the network egress node or such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node **(See Szviatovszki'821 Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)**, and the quality non-guaranteed route searching module **(Szviatovszki'821 Figure 7, element 76 also serves as the quality non- guaranteed (i.e. low priority or best effort class) search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to maximize the residual bandwidth between the network ingress node and the network egress node, selects such a route as to minimize a cross-over hop count **(See Szviatovszki'821 Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node.

Regarding **claim 30**, it is noted that all of the limitations of claim 30 correspond to all of the limitations of claim 29 and hence the Examiner’s comments with respect to claim 29 as set forth above applies.

Regarding **claim 31**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device wherein at least one of the quality guaranteed route searching module and the quality non-guaranteed route searching module, at a point of time when selecting a route afresh, switches over a route selection system.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)**, wherein at least one of the quality guaranteed route searching module and the quality non-guaranteed route searching module **(Figure 7, element 76 also serves as both the quality non- guaranteed (i.e. low priority or best effort class) and quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6 and has to do some form of software switching functionality to access code responsible for the quality guaranteed and best effort component)**, at a point of time when selecting a route afresh, switches over a route selection system.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses

the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 32**, it is noted that all of the limitations of claim 32 correspond to all of the limitations of claim 31 and hence the Examiner's comments with respect to claim 31 as set forth above applies.

Regarding **claim 40**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device wherein a transmission bandwidth control device, wherein the quality guaranteed route searching module when accepting a request for a service that guarantees a forwarding quality, makes a selection from a topology connecting links of which a using bandwidth for a service that does not guarantee the forwarding quality does not exceed a threshold value and of which a residual bandwidth obtained by a calculation of a link's using bandwidth is equal to or larger than the request bandwidth.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)**, wherein a transmission bandwidth control device, wherein the quality guaranteed route searching module when accepting a request for a service that guarantees a forwarding quality, makes a selection from a topology connecting links of

which a using bandwidth for a service that does not guarantee the forwarding quality does not exceed a threshold value and of which a residual bandwidth obtained by a calculation of a link's using bandwidth is equal to or larger than the request bandwidth **(In Column 5, 10-20 Szviatovszki'821 discusses receiving a request or demand at the router and as shown in Figure 2 block 16 the resources in terms of bandwidth and the quality in terms of priority is determined for the request and in Figure 2 block 18 the network database is checked against the request's determined QoS priority by pruning the database and identifying paths that pre-empts the lowest priority level (i.e. quality non-guaranteed). But if it cannot find such a path then the request is blocked as indicated in Column 9, Lines 11-13)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 41**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device wherein a transmission bandwidth control device, further comprising module referring to a threshold value related to a path

using ratio, wherein the load sharing control unit, in the case of exceeding the threshold value related to the using ratio, shifts the flow that does not guarantee the forwarding quality to a detour route.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)**, wherein a transmission bandwidth control device, further comprising module referring to a threshold value related to a path using ratio **(See Equations specified in Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed)**, wherein the load sharing control unit, in the case of exceeding the threshold value related to the using ratio, shifts the flow that does not guarantee the forwarding quality to a detour route **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses

the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 42**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device further comprising module referring to a threshold value related to a ratio at which an actual using bandwidth for a service that does not guarantee the forwarding quality occupies a bandwidth left by subtracting a bandwidth ensured for the service that guarantees the forwarding quality in a path, wherein the router control unit, when the ratio of the actual using bandwidth exceeds the threshold value, shifts the flow that does not guarantee the forwarding quality to a detour route.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)**, wherein a transmission bandwidth control device, further comprising module referring to a threshold value related to a ratio **(See Equations specified in Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed)** at which an actual using bandwidth for a service that does not guarantee the forwarding quality occupies a bandwidth left by subtracting a bandwidth ensured for the service that guarantees the forwarding quality in a path,

wherein the router control unit, when the ratio of the actual using bandwidth exceeds the threshold value, **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done how data for a low priority is assigned to the detour non-guaranteed routes during a call and call setup to fulfill load balancing)** shifts the flow that does not guarantee the forwarding quality to a detour route.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 43**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality non-guaranteed route searching module further includes module referring to a threshold value related to a ratio at which an estimated range of the using bandwidth for the service that does not

guarantee the forwarding quality occupies a bandwidth left by subtracting a bandwidth ensured for such a service as to guarantee the forwarding quality in the path by accepting the estimated range of the using bandwidth when accepting a request for the service that does not guarantee the forwarding quality, and the router control unit, when the ratio exceeds the threshold value, shifts the flow that does not guarantee the forwarding quality to the detour route.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 76 serves as the quality non-guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)**, wherein the quality non-guaranteed route searching module further includes module referring to a threshold value related to a ratio **(See Equations specified in Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed)** at which an estimated range of the using bandwidth for the service that does not guarantee the forwarding quality occupies a bandwidth left by subtracting a bandwidth ensured for such a service as to guarantee the forwarding quality in the path by accepting the estimated range of the using bandwidth when accepting a request for the service that does not guarantee the forwarding quality, **(Also in Figure 8, blocks 102-108 and Column 9, lines 27-40 Szviatovszki'821 details how load balancing is done how data for a low priority is assigned to the detour non-guaranteed routes during a call and call setup to fulfill load balancing)** and the router control unit, when the ratio exceeds the threshold value, shifts the flow that

does not guarantee the forwarding quality to the detour route, **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 44**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein at least one of the quality guaranteed route searching module and the quality non-guaranteed route searching module, when accepting a request for a service that guarantees a forwarding quality and a request for a service that does not guarantee the forwarding quality, selects a route in accordance with an individually predetermined route selection policy, and, when accepting the request for the service that guarantees the forwarding quality, determines a route from a topology taking allowances for a link of which a link's residual

bandwidth is equal to or larger than the request bandwidth and for a link where a ratio at which a quality non-guaranteed traffic occupies the link does not exceed a predetermined reference value.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 76 serves as both the quality non-guaranteed and quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)**, wherein at least one of the quality guaranteed route searching module and the quality non-guaranteed route searching module **(Examiner emphasizes a router searcher module as long as it is able to accept a request for both quality guaranteed and non-guaranteed services and has separate algorithms to determine call admission and load balancing as Szviatovszki'821 teaches then it has to have separate modules to process and search the network database. This is true for any router like Ma'317 and Soumiya'357 that has a network database distinguishing path and route info based on priority/class/QoS basis)**, when accepting a request for a service that guarantees a forwarding quality and a request for a service that does not guarantee the forwarding quality, selects a route in accordance with an individually predetermined route selection policy, and, when accepting the request for the service that guarantees the forwarding quality, determines a route from a topology taking allowances for a link of which a link's residual bandwidth is equal to or larger than the request bandwidth and for a link where a ratio at which a quality non-guaranteed traffic occupies the link does

not exceed a predetermined reference value **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done how data for a low priority is assigned to the detour non-guaranteed routes during a call and call setup to fulfill load balancing)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 45**, it is noted that all of the limitations of claim 45 correspond to all of the limitations of claim 40 and hence the Examiner's comments with respect to claim 40 as set forth above applies.

Regarding **claim 46**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the load sharing control unit further includes module referring to a threshold value related to the path using ratio,

and, when the using ratio is less than the threshold value, the router control unit, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to the path of which the using ratio is less than the threshold value from the less optimal path.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 serves as the bandwidth control device)**, wherein the load sharing control unit **(Figure 7, element 80 serves as the load sharing control and route control unit)** further includes module referring to a threshold value(All the Bp related to the path using ratio, and, when the using ratio **(See Equations specified in Column 10, Lines 30-40 and Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed)** is less than the threshold value, the router control unit **(Figure 7, element 80 serves as the load sharing control and route control unit)**, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to the path of which the using ratio is less than the threshold value from the less optimal path **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done and how data for a guaranteed service is directed to a link**

with a residual bandwidth for guaranteed service as opposed to directing it to less optimal path used for non-guaranteed services to fulfill load balancing and fairness to the non-guaranteed services).

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 47**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the load sharing control unit further includes module referring to a threshold value related to a bandwidth ensured for the service that guarantees the forwarding quality in the path, and, when the using ratio is less than the threshold value, the router control unit, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to an optimal path having the residual bandwidth.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission

bandwidth control device **(Figure 7, element 70 serves as the bandwidth control device)**, wherein the load sharing control unit **(Figure 7, element 80 serves as the load sharing control and route control unit)** further includes module referring to a threshold value related to a bandwidth ensured for the service that guarantees the forwarding quality in the path, and, when the using ratio is less than the threshold value **(See Equations specified in Column 10, Lines 30-40 and Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed)** , the router control unit **(Figure 7, element 80 serves as the load sharing control and route control unit)**, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to an optimal path having the residual bandwidth **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done and how data for a guaranteed service is directed to a link with a residual bandwidth for guaranteed service as opposed to directing it to less optimal path used for non-guaranteed services to fulfill load balancing and fairness to the non-guaranteed services)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in

the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 48**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the load sharing control unit further includes module referring to a threshold value related to ratio at which a bandwidth ensured for the service that guarantees the forwarding quality occupies a bandwidth utilizable for the quality guaranteed service in the path, and, when the ratio is less than the threshold value, the router control unit, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to an optimal path having the residual bandwidth.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 serves as the bandwidth control device)**, wherein the load sharing control unit **(Figure 7, element 80 serves as the load sharing control and router control unit)** further includes module referring to a threshold value related to ratio at which a bandwidth ensured for the service that guarantees the forwarding quality occupies a bandwidth utilizable for the quality guaranteed service in the path, and, when the ratio is less than the threshold value **(See**

Equations specified in Column 10, Lines 30-40 and Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed), the router control unit **(Figure 7, element 80 serves as the load sharing control and router control unit)**, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to an optimal path having the residual bandwidth **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done and how data for a guaranteed service is directed to a link with a residual bandwidth for guaranteed service as opposed to directing it to less optimal path used for non-guaranteed services to fulfill load balancing and fairness to the non-guaranteed services)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on

lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 49**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the load sharing control unit further includes module referring to a threshold value related threshold value related to an actual using bandwidth for the service that guarantees the forwarding quality in the path, and, when the actual using bandwidth is less than the threshold value, the router control unit, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path, shifts the quality guaranteed flow to an optimal path having the residual bandwidth.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 serves as the bandwidth control device)**, wherein the load sharing control unit **(Figure 7, element 80 serves as the load sharing control and router control unit)** further includes module referring to a threshold value related threshold value related to an actual using bandwidth for the service that guarantees the forwarding quality in the path, and, when the actual using bandwidth is less than the threshold value **(See Equations specified in Column 10, Lines 30-40 and Column 11, Lines 10-15 can be expressed as a ratio of one as no specific ratio is claimed)**, the router control unit **(Figure 7, element 80 serves as the load sharing control and router control unit)**, when there is a residual bandwidth for accommodating the quality guaranteed flow and there exists other less optimal path,

shifts the quality guaranteed flow to an optimal path having the residual bandwidth. **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done and how data for a guaranteed service is directed to a link with a residual bandwidth for guaranteed service as opposed to directing it to less optimal path used for non-guaranteed services to fulfill load balancing and fairness to the non-guaranteed services)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 50**, it is noted that all of the limitations of claim 50 correspond to all of the limitations of claim 49 and hence the Examiner’s comments with respect to claim 49 as set forth above applies.

Regarding **claim 51**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the load sharing control unit, in a state where a plurality of paths are set up for the flow that guarantees the forwarding quality, in the case of being unable to ensure a request bandwidth for the quality guaranteed service due to a small residual bandwidth but in the case of being able to ensure the request bandwidth by shifting the existing flows accommodated in the plurality of paths, accepts a request by effecting a flow shift.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **(Figure 7, element 70 serves as the bandwidth control device)**, wherein the load sharing control unit **(Figure 7, element 80 serves as the load sharing control and router control unit)**, in a state where a plurality of paths are set up for the flow that guarantees the forwarding quality, in the case of being unable to ensure a request bandwidth for the quality guaranteed service due to a small residual bandwidth but in the case of being able to ensure the request bandwidth by shifting the existing flows accommodated in the plurality of paths, accepts a request by effecting a flow shift **(The pre-emption vector Bp is really the threshold for each link and cannot be exceeded and when Bp is about to be exceeded traffic is directed to the pre-emptable low priority level which is the quality non-guaranteed service as detailed in the examples shown in Column 11, Lines 40-67. Also Figure 8, blocks 102-108 and Column 9, lines 27-40 detail how load balancing is done and how data for a guaranteed service is directed to a link with a residual bandwidth for**

guaranteed service as opposed to directing it to less optimal path used for non-guaranteed services to fulfill load balancing and fairness to the non-guaranteed services).

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357 and Tanay'246 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

8. **Claims 19 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Soumiya'357 in view of Tanay'246 and Ash'867 as applied to claims 7 and 8 respectively above, and further in view of Szviatovszki (US 6, 956, 821 B1).

Regarding **claim 19**, the combination of Soumiya'357, Tanay'246, and Ash'867 fails to disclose a transmission bandwidth control device , wherein the quality guaranteed route searching module when there exist a plurality of such routes as to minimize the cross-over hop count between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node or such a route as to minimize a

residual bandwidth therein between the network ingress node and the network egress node, and the quality non-guaranteed route searching module when there exist a plurality of such routes as to minimize the cross-over hop count between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node.

However, the above mentioned claimed limitations are well known in the art as evidenced by Szviatovszki'821. In particular, Szviatovszki'821 discloses a transmission bandwidth control device **Figure 7, element 70 a Label Switched Router that serves as a bandwidth broker with a traffic engineering database)**, wherein the quality guaranteed route searching module **(Figure 7, element 76 serves as the quality guaranteed search module as described in Szviatovszki'821 Column 9, Lines 1-10 and Column 10, Lines 4-6)** when there exist a plurality of such routes as to minimize the cross-over hop count **(See Figure 3, block 40 requiring min hop as a selection criteria)** between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth **(See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item)** therein between the network ingress node and the network egress node or such a route as to minimize a residual bandwidth therein between the network ingress node and the network egress node **(See Figure 3, block 42 by selecting the path that has the**

most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth), and the quality non-guaranteed route searching module when there exist a plurality of such routes as to minimize the cross-over hop count between the network ingress node and the network egress node, selects such a route as to maximize a residual bandwidth therein between the network ingress node and the network egress node (**See Figure 3, block 42 by selecting the path that has the most amount of unreserved bandwidth at the lowest priority level which is quality non-guaranteed service as further illustrated in Column 4, Lines 14-15 and further shown in Figure 8, in block 108 as the third bullet item. Residual Bandwidth with links having quality guaranteed routes is minimized by re-routing or selecting route or path from links having high unreserved bandwidth with quality non-guaranteed (i.e. low priority) and in turn maximizing the use of the unreserved bandwidth of links with low priority routes and high unreserved available bandwidth)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357, Tanay'246, and Ash'867 and then given the well established teaching of Szviatovszki'821, it would have been obvious to one having

ordinary skill in the art at the time of the invention was made to modify combination of Soumiya'357, Tanay'246, and Ash'867 as taught by Szviatovszki'821, since Szviatovszki'821 invention addresses the network Traffic Engineering challenge of selecting a path or a route that has a specific bandwidth requirement and priority level having the least pre-emptive effect on lower priority (i.e. quality non-guaranteed) traffic as stated in Column 3, Lines 14-16 and 62-64 guaranteeing higher network throughput.

Regarding **claim 20**, it is noted that all of the limitations of claim 20 correspond to all of the limitations of claim 19 and hence the Examiner's comments with respect to claim 19 as set forth above applies.

9. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Soumiya'357 in view of Tanay'246 as applied to claim 1 above, and further in view of Prager et al (US 7, 310, 341 B1).

Regarding **claim 33**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality non-guaranteed route searching module, when selecting a route for a flow that does not guarantee a forwarding quality, a ratio of a remaining bandwidth which is a result of subtracting a bandwidth for a flow that guarantees the forwarding quality and for the flow that does not guarantee the forwarding quality from the entire link as a link's physical bandwidth, with respect to the entire link bandwidth, is used as a link's available bandwidth.

However, the above mentioned claimed limitations are well known in the art as evidenced by Prager'341. In particular, Prager'341 discloses a transmission bandwidth control device **(See Figure 2A, which is a router at node 106 capable of doing route calculation, quality non-guaranteed route searching and congestion determination using its processors on the ingress/egress ports as further illustrated in Column 6, Lines 60-67 and previously further illustrated in Column 7, in Lines 1-3 and 28-35)** wherein the quality non-guaranteed route searching module, when selecting a route for a flow that does not guarantee a forwarding quality, a ratio of a remaining bandwidth **(Ma'317 shows calculation of a ratio of available bandwidth in Column 8, Lines 30-40, and further shown in Equations 1 and 2)** which is a result of subtracting a bandwidth for a flow that guarantees the forwarding quality and for the flow that does not guarantee the forwarding quality from the entire link as a link's physical bandwidth, is used as a link's available bandwidth **(Further more it is widely known that available bandwidth the difference between the total link bandwidth and the bandwidth used by the guaranteed services and non-guaranteed services. The ratio claimed is simply indicating what portion of the total bandwidth is the available bandwidth)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Prager'341, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination of Soumiya'357 and Tanay'246 as taught by Prager'341, since Prager'341 indicates in Column 2, Lines 50-

60 that it is desirable to provide a multi-class traffic engineering technique which improves inter-class resource sharing efficiency to achieve high network throughput of each class of service in the network.

10. **Claim 34-39 and 53** are rejected under 35 U.S.C. 103(a) as being unpatentable over Soumiya'357 in view of Tanay'246 as applied to claim 1 above, and further in view of Ma (US 6, 493, 317 B1).

Regarding **claim 34**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality non-guaranteed route searching module, when selecting a route for a flow that does not guarantee a forwarding quality, a remaining bandwidth which is a result of subtracting a bandwidth for a flow that guarantees the forwarding quality and for the flow that does not guarantee the forwarding quality from the entire link as a link's physical bandwidth, is used as a link's available bandwidth.

However, the above mentioned claimed limitations are well known in the art as evidenced by Ma'317. In particular, Ma'317 discloses a transmission bandwidth control device **(See Figure 2, which is a router 10 capable of doing route calculation, quality non-guaranteed route searching and congestion determination using its CPU 62 as further illustrated in Column 6, Lines 5-10 and previously further illustrated in Column 4, Lines 10-30)** wherein the quality non-guaranteed route searching module, when selecting a route for a flow that does not guarantee a

forwarding quality, a remaining bandwidth **(Ma'317 shows calculation of available bandwidth in Column 9, Lines 55-65 and further shown in Figure 5, step307)** which is a result of subtracting a bandwidth for a flow that guarantees the forwarding quality and for the flow that does not guarantee the forwarding quality from the entire link as a link's physical bandwidth, is used as a link's available bandwidth **(Further more it is widely known that available bandwidth the difference between the total link bandwidth and the bandwidth used by the guaranteed services and non-guaranteed services. The ratio claimed is simply indicating what portion of the total bandwidth is the available bandwidth)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ma'317, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination of Soumiya'357 and Tanay'246 as taught by Ma'317, since Ma'317 indicates in Column 3, Lines 4-15 that it is desirable to provide a multi-class traffic engineering technique which improves inter-class resource sharing efficiency to achieve high network throughput of each class of service in the network.

52. Regarding **claim 35**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality non-guaranteed route searching module, when selecting a route for a flow that does not guarantee a forwarding quality, uses a ratio of a remaining bandwidth, as a link's residual bandwidth, which is a result of subtracting the bandwidth for the flow that does

not guarantee the forwarding quality from a link bandwidth as link's physical bandwidth with respect to a bandwidth unreserved for the flow that guarantees the forwarding quality.

However, the above mentioned claimed limitations are well known in the art as evidenced by Ma'317. In particular, Ma'317 discloses a transmission bandwidth control device **(See Figure 2, which is a router 10 capable of doing route calculation, quality non-guaranteed route searching and congestion determination using its CPU 62 as further illustrated in Column 6, Lines 5-10 and previously further illustrated in Column 4, Lines 10-30)** wherein the quality non-guaranteed route searching module, when selecting a route for a flow that does not guarantee a forwarding quality, uses a ratio of a remaining bandwidth, as a link's residual bandwidth, which is a result of subtracting the bandwidth for the flow that does not guarantee the forwarding quality from a link bandwidth as link's physical bandwidth **(Ma'317 shows calculation of available or residual bandwidth in Column 9, Lines 55-65 and further shown in Figure 5, steps 307 and 310)**,with respect to a bandwidth unreserved for the flow that guarantees the forwarding quality.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ma'317, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination of Soumiya'357 and Tanay'246 as taught by Ma'317, since Ma'317 indicates in Column 3, Lines 4-15 that it is desirable to provide a multi-class traffic engineering technique which improves inter-

class resource sharing efficiency to achieve high network throughput of each class of service in the network.

Regarding **claim 36**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module, when selecting a route for a flow that guarantees a forwarding quality, uses a remaining bandwidth, as a link's residual bandwidth, which is a result of subtracting the bandwidth for the forwarding quality guaranteed flow from a bandwidth utilizable for the forwarding quality guaranteed flow.

However, the above mentioned claimed limitations are well known in the art as evidenced by Ma'317. In particular, Ma'317 discloses a transmission bandwidth control device **(See Figure 2, which is a router 10 capable of doing route calculation, quality guaranteed route searching and congestion determination using its CPU 62 as further illustrated in Column 6, Lines 5-10 and previously further illustrated in Column 4, Lines 10-30)** , wherein the quality guaranteed route searching module, when selecting a route for a flow that guarantees a forwarding quality, uses a remaining bandwidth, as a link's residual bandwidth**(Ma'317 shows calculation of available or residual bandwidth in Column 9, Lines 55-65 and further shown in Figure 5, steps 307 and 310)**, which is a result of subtracting the bandwidth for the forwarding quality guaranteed flow from a bandwidth utilizable for the forwarding quality guaranteed flow **(This is simply calculating how much of the reserved bandwidth is currently utilized)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ma'317, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination of Soumiya'357 and Tanay'246 as taught by Ma'317, since Ma'317 indicates in Column 3, Lines 4-15 that it is desirable to provide a multi-class traffic engineering technique which improves inter-class resource sharing efficiency to achieve high network throughput of each class of service in the network.

Regarding **claim 37**, the combination of Soumiya'357 and Tanay'246 fails to disclose a transmission bandwidth control device, wherein the quality guaranteed route searching module, when selecting a route for a flow that guarantees a forwarding quality, uses a ratio of a remaining bandwidth, as a link's residual bandwidth, which is a result of subtracting a bandwidth for the forwarding quality guaranteed flow from a bandwidth utilizable for the forwarding quality guaranteed flow, with respect to the bandwidth utilizable for the forwarding quality guaranteed flow.

However, the above mentioned claimed limitations are well known in the art as evidenced by Ma'317. In particular, Ma'317 discloses a transmission bandwidth control device **(See Figure 2, which is a router 10 capable of doing route calculation, quality guaranteed route searching and congestion determination using its CPU 62 as further illustrated in Column 6, Lines 5-10 and previously further illustrated in Column 4, Lines 10-30)** , wherein the quality guaranteed route searching module, when selecting a route for a flow that guarantees a forwarding quality, uses a ratio of a

remaining bandwidth, as a link's residual bandwidth **(Ma'317 shows calculation of available or residual bandwidth in Column 9, Lines 55-65 and further shown in Figure 5, steps 307 and 310)**, which is a result of subtracting the bandwidth for the forwarding quality guaranteed flow from a bandwidth utilizable for the forwarding quality guaranteed flow with respect to the bandwidth utilizable for the forwarding quality guaranteed flow **(This is simply calculating how much of the reserved bandwidth is currently utilized and formulating a ratio with respect to the total reserved bandwidth as suggested by Ma'317 in Equations 12 and 13)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ma’317, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination of Soumiya'357 and Tanay'246 as taught by Ma’317, since Ma’317 indicates in Column 3, Lines 4-15 that it is desirable to provide a multi-class traffic engineering technique which improves inter-class resource sharing efficiency to achieve high network throughput of each class of service in the network.

Regarding **claim 38**, the combination of Soumiya'357, Tanay'246, and Ma'317 discloses a transmission bandwidth control device, wherein the quality non-guaranteed route searching module, when accepting a request for a service, determines a route from a topology taking allowances for the entire link **(Ma'317 Figure 5 every calculation is based on the entire capacity of each link).**

Regarding **claim 39**, the combination of Soumiya'357, Tanay'246, and Ma'317 discloses a transmission bandwidth control device, wherein the quality guaranteed route searching module, when accepting a request for a service, determines a route from a topology taking allowances for only a link of which a link's residual bandwidth is equal to or larger than the request bandwidth **(Ma'317 Figure 6 in block 415 shows if the request r is greater than the high mark of the link's residual bandwidth then the link is selected).**

Regarding **claim 53**, the combination of Soumiya'357 and Tanay'246 discloses a load sharing control unit **(The Traffic Engineering Section 116 of Figure 8 is further detailed in Figure 9 as containing a load adjustment and observation sections. See also Column 10, Lines 30-35)**, a route control unit **(See Figure 8, elements 112, 113, and 114 collectively act as a route control unit as further illustrated in Column 10, Lines 20-27)** as a route searching module, a router control unit **(See Figure 8, elements 112 and 115 collectively function as the router control unit by setting the LSP and communicating it to other routers as further illustrated in Column 10, Lines 38-44)** and a network information database for storing the statistical information **(Figure 8, element 113A is a Link State Database used for storing the statistical info as further illustrated in Column 10, Lines 20-25)** as set forth above in the rejection of the parent claim 2.

However, the combination of Soumiya'357and Tanay'246 fails to disclose a transmission bandwidth control device, further comprising a congestion judging unit for judging by referring to the link statistical information whether a load state of the path

falls into a congestion or not, wherein when the load state of the path falls into the congestion, the quality non-guaranteed route searching module searches for quality non-guaranteed route information, the load sharing control unit executes the load sharing process by referring to the quality guaranteed route information and the quality non-guaranteed route information, and the router control unit sets a quality non-guaranteed route in accordance with the quality non-guaranteed route information. However, the above mentioned claimed limitations are well known in the art as evidenced by Ma'317. In particular, Ma'317 discloses a transmission bandwidth control device **(See Figure 2, which is a router 10 capable of doing route calculation and congestion determination using its CPU 62 as further illustrated in Column 6, Lines 5-10 and previously further illustrated in Column 4, Lines 10-30)** , further comprising a congestion judging unit **(Router 10 of Figure 1 CPU 61 has a congestion judging module)** for judging by referring to the link statistical information **(The memory sections of Figure 2 can be used to store the statistical info as illustrated in Column 6, Lines 15-20)** whether a load state of the path falls into a congestion or not, wherein when the load state of the path falls into the congestion, the quality non-guaranteed route searching module searches for quality non-guaranteed route information **(In Column 4, Lines 45-65 Ma'317 describes how the congestion for a link is computed using the residual bandwidth value and a link congestion index)**, the load sharing control unit **(The router 10 CPU 62 of Figure 2 has load sharing control capability as stated in Column 6, Lines 5-10 and previously further illustrated in Column 4, Lines 10-30)** executes the load sharing process by

referring to the quality guaranteed route information and the quality non-guaranteed route information, and the router control unit sets a quality non-guaranteed route in accordance with the quality non-guaranteed route information **(MA'317 further elaborates in Column 4, Lines 65-67 and Column 5, Lines 1-10 that the quality non-guaranteed route info, i.e. best effort class, and the quality guaranteed route are referred to provide load balance. The ratio of the residual bandwidth is varied depending on the congestion level of the link with respect to the best effort class traffic as well as the quality guaranteed class traffic)**.

In view of the above, having the device based on the teachings of the combination of Soumiya'357 and Tanay'246 and then given the well established teaching of Ma'317, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination of Soumiya'357 and Tanay'246 as taught by Ma'317, since Ma'317 indicates in Column 3, Lines 4-15 that it is desirable to provide a multi-class traffic engineering technique which improves inter-class resource sharing efficiency to achieve high network throughput of each class of service in the network.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HABTE MERED whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Habte Mered/
Examiner, Art Unit 2416

12-28-08

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2416